

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A light receiving element for converting a light signal into an electric signal, comprising:

a semiconductor substrate;

a semiconductor layer;

a photo-absorption layer interposed between the semiconductor substrate and the semiconductor layer;

an active region having a window layer disposed at both ends and disposed on top of the photo-absorption layer, the semiconductor substrate comprises:

a first groove having an inclination with respect to an incidence plane of the light signal so that the light signal can be refracted when the light signal has been incident on the first groove;

a second groove for reflecting the light signal refracted by the first groove to be absorbed into the photo-absorption layer, so that a vertical-incidence drift of the light signal toward the photo-absorption layer is minimized;

a first electrode formed at a first bottom of the semiconductor substrate; and

a second electrode formed at a second bottom of the semiconductor substrate,

wherein the light signal enters the semiconductor substrate at a substantially horizontal orientation, refracts upon entering the first groove at a predetermined angle and propagating towards the photo-absorption layer, and further refracted after being reflected by the second groove so that the light signal is propagating substantially perpendicular to the base of the semiconductor substrate.

2. (Original)The light receiving element of claim 1, wherein the semiconductor substrate is made from a semiconductor material in which a specific crystalline direction is etched slowly, so that the semiconductor substrate has an inclined profile after being wet-etched.

3. (Original)The light receiving element of claim 2, wherein the semiconductor substrate exposes (111) plane after being etched by a wet solution.

4. (Original)The light receiving element of claim 3, wherein the semiconductor substrate is made from one of a group VI, a group II-VI, and a group III-V semiconductor substrate.

5. (Original) The light receiving element of claim 1, wherein the first groove and the second groove are formed to have a slant angle of 50° to 60° relative to a horizontal orientation.

6. (Original)The light receiving element of claim 1, wherein the first groove and the second groove have a ‘U’ shape or a ‘V’ shape.

7. (Original)The light receiving element of claim 1, wherein the first groove further comprises an anti-reflective coating layer so that the light signal is refracted without a reflection when the light signal is incident thereto.

8. (Original)The light receiving element of claim 7, wherein the anti-reflective coating layer is a deposited film formed by a chemical vapor deposition process or a physical vapor deposition process.

9. (Original)The light receiving element of claim 1, wherein the second groove further comprises a total reflection layer.

10. (Original)The light receiving element of claim 9, wherein the total reflection layer is made from a metal layer having a thickness substantially greater than the skin depth of the metal layer.

11. (Original)The light receiving element of claim 10, further comprising a dielectric film formed between the semiconductor substrate and the metal layer.

12. (Original) The light receiving element of claim 1, wherein the semiconductor substrate has a higher energy band gap than that of the light signal.

13. (Previously amended) The light receiving element of claim 1, wherein the light receiving element further includes:

a third electrode formed on the semiconductor layer.